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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,368	NAKAMURA ET AL.	
	Examiner	Art Unit	
	KATRINA FUJITA	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) *17-21 and 29-31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 June 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/23/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species I in the reply filed on June 16, 2008 is acknowledged. The traversal is on the ground(s) that there is no serious burden. This is not found persuasive because, as the Examiner pointed out in the requirement for election, the species do not correspond to a single inventive concept and each require substantial search in separate areas for their special technical features.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 17-21 and 29-31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on June 16, 2008.

Priority

3. Acknowledgment is made of applicant's claim for foreign priority based on applications filed in Japan on December 26, 2002 and June 25, 2003. It is noted,

however, that applicant has not filed certified copies of the 2002-378487 and 2003-180356 applications as required by 35 U.S.C. 119(b).

Drawings

4. Figures 9, 12 and 14 are objected to because of the following informalities:

In the box S203 of Figure 9, "Subtration" should be -- Subtraction --.

In the box S1005 of Figure 12, "Subtration" should be -- Subtraction --.

In Figure 14, "Posive" should be – Positive --.

5. Figure 1 is objected to as failing to comply with 37 CFR 1.84(p)(5) because it does not include the following reference sign(s) mentioned in the description: 3b.

6. Figure 16 is objected to as failing to comply with 37 CFR 1.84(p)(5) because it includes the following reference character(s) not mentioned in the description: S603.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be

notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

7. The abstract of the disclosure is objected to because it contains reference numerals from the drawings. Correction is required. See MPEP § 608.01(b).

8. The disclosure is objected to because of the following informalities:

On page 48, line 11, "total sum operation processing (step S907)" should be – total sum operation processing (step ~~S907~~ S908) --.

Appropriate correction is required.

Claim Objections

9. The following is a quotation of 37 CFR 1.75(a):

> The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

10. Claims 8, 10, and 12 are objected to under 37 CFR 1.75(a), as failing to particularly point out and distinctly claim the subject matter which application regards as his invention or discovery.

Claim 8 lacks antecedent basis for "the difference data string" in line 3. The following will be assumed for examination purposes: -- ~~the~~ a difference data string --.

Claim 10 lacks antecedent basis for "the difference data string" in line 3. The following will be assumed for examination purposes: -- ~~the~~ a difference data string --.

Claim 10 recites "the input data" in line 7. It is unclear whether this is intended to be the same as or different from the "specific input data" in line 4. The following will be assumed for examination purposes: -- the specific input data --.

Claim 12 lacks antecedent basis for "the specific total sum data string" in line 3. The following will be assumed for examination purposes: -- ~~the~~ a specific total sum data string --.

Claim 12 lacks antecedent basis for "the specific difference data string" in line 3. The following will be assumed for examination purposes: -- ~~the~~ a specific difference data string --.

Claim 12 lacks antecedent basis for "the specific input data" in line 4. The following will be assumed for examination purposes: -- ~~the~~ specific input data --.

Claim 12 recites "the input data" in line 18. It is unclear whether this is intended to be the same as or different from the "specific input data" in line 17. The following will be assumed for examination purposes: -- the specific input data --.

Claim 12 lacks antecedent basis for "the pattern on the surface of the object to be identified" in line 33. The following will be assumed for examination purposes: -- ~~the~~ a pattern on ~~the~~ a surface of ~~the~~ an object to be identified --.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 1-12, 15, 22-24 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. (US 6,499,581).

Regarding **claim 1**, Yoshida et al. discloses a pattern identification method for identifying a pattern on a surface of an object to be identified ("coin discriminating apparatus for accurately discriminating a counterfeit coin even when optical data acquired from the counterfeit coin such as diameter data and surface pattern thereof coincide with those of genuine coins" at col. 1, line 7), the method comprising analyzing output data based on image data obtained by picking up an image of the pattern of the surface of the object to be identified which is an identification object ("receiving light reflected by the upper surface of a coin 1 and producing image pattern data" at col. 9, line 15), wherein, the pattern identification method further comprises:

previously setting a selection area on the output data ("reads the pattern data values at a predetermined distance r0 from the data center of the converted pattern data" at col. 22, line 45);

executing total sum operation processing for obtaining total sum value of the output data in the selection area (figure 13; the figure is the total sum of value of each pixel along the read line); and

identifying the pattern on the surface of the object to be identified on the basis of the total sum value ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20).

Yoshida et al. does not explicitly disclose that the selection area includes a local maximum value or a local minimum value.

However, as seen in figure 13, the read line includes a variety of values, which conceivably correspond to a local maximum value or a local minimum value of the read line.

Regarding **claim 2**, Yoshida et al. discloses a pattern identification method wherein identification of the pattern on the surface of the object to be identified is performed by comparing the total sum value with a prescribed threshold value ("the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 23"; the reference pattern data is a prescribed threshold value for each corresponding data point of the read data).

Regarding **claim 3**, Yoshida et al. discloses a pattern identification method comprising picking up an image of a pattern on a surface of an object to be identified ("coin discriminating apparatus for accurately discriminating a counterfeit coin even

when optical data acquired from the counterfeit coin such as diameter data and surface pattern thereof coincide with those of genuine coins" at col. 1, line 7) which is an identification object, extracting an obtained image data with a prescribed pitch ("reads the pattern data values at a predetermined distance r0 from the data center of the converted pattern data" at col. 22, line 45; reference data is also read at the same distance, as seen in figures 12 and 14), analyzing output data which are extracted and obtained ("receiving light reflected by the upper surface of a coin 1 and producing image pattern data" at col. 9, line 15), and identifying the pattern on the surface of the object to be identified ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20),

wherein, the pattern identification method further comprises:

previously setting a selection area on the output data ("reads the pattern data values at a predetermined distance r0 from the data center of the converted pattern data" at col. 22, line 45);

executing total sum operation processing for obtaining total sum value of the output data in the selection area (total sum of value of each pixel along the read line);

obtaining total sum data string which is data string of the total sum value by executing the total sum operation processing whenever the output data and the selection area are relatively shifted with a prescribed pitch (figure 13; the selection area of acquired data corresponds to a rotational pitch shift from the reference data); and

identifying the pattern on the surface of the object to be identified by analyzing the total sum data string ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20).

Yoshida et al. does not explicitly disclose that the selection area includes a local maximum value or a local minimum value.

However, as seen in figure 13, the read line includes a variety of values, which conceivably correspond to a local maximum value or a local minimum value of the read line.

Regarding **claim 4**, Yoshida et al. discloses a pattern identification method comprising picking up an image of a pattern on a surface of an object to be identified which is an identification object ("coin discriminating apparatus for accurately discriminating a counterfeit coin even when optical data acquired from the counterfeit coin such as diameter data and surface pattern thereof coincide with those of genuine coins" at col. 1, line 7), extracting an obtained image data with a prescribed pitch ("reads the pattern data values at a predetermined distance r0 from the data center of the converted pattern data" at col. 22, line 45; reference data is also read at the same distance, as seen in figures 12 and 14), analyzing output data which are extracted and obtained ("compares the two sets of pattern data values, thereby correcting the deviation of the converted pattern data" at col. 22, line 54), and identifying the pattern on the surface of the object to be identified ("discriminates whether or not the coin 1 is

the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20),

wherein, the pattern identification method further comprises:

previously setting a first selection area of the output data ("reads the pattern data values at a predetermined distance r0 from the data center of the converted pattern data" at col. 22, line 45) and a second selection area of the output data on the output data (figure 12);

executing total sum operation processing for obtaining a first total sum value of the output data in the first selection area (figure 13; the figure is the total sum of value of each pixel along the read line) and a second total sum value of the output data in the second selection area (figure 14; the figure is the total sum of value of each pixel along the read line);

obtaining a first total sum data string which is data string of the first total sum value and a second total sum data string which is data string of the second total sum value by executing the total sum operation processing whenever the output data and the first selection area and the second selection area are relatively shifted with the prescribed pitch ("remaps the converted pattern data shown in FIG. 11 so that θ1 becomes equal to θ2" at col. 23, line 14; the selection area of acquired data corresponds to a relative rotational pitch shift from the reference selection data);

calculating a difference data string by calculating difference between respective elements of the first total sum data string and respective elements of the second total

sum data string corresponding to the respective elements of the first total sum data string ("compares the two sets of pattern data values, thereby correcting the deviation of the converted pattern data" at col. 22, line 54); and

identifying the pattern on the surface of the object to be identified by analyzing the difference data string ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20).

Yoshida et al. does not explicitly disclose that the selection areas include a local maximum value and a local minimum value.

However, as seen in figures 13 and 14, the read lines include a variety of values, which conceivably correspond to a local maximum value and a local minimum value of the read lines.

Regarding **claim 5**, Yoshida et al. discloses a pattern identification method comprising picking up an image of a pattern on a surface of a circular object to be identified which is an identification object ("coin discriminating apparatus for accurately discriminating a counterfeit coin even when optical data acquired from the counterfeit coin such as diameter data and surface pattern thereof coincide with those of genuine coins" at col. 1, line 7), setting a ring-shaped detection area concentrically with the circular object to be identified on an obtained image data ("reads the pattern data values at a predetermined distance r0 from the data center of the converted pattern data" at col. 22, line 45), and identifying the pattern on the surface of the circular object to be

identified by analyzing output data which is obtained by extracting image data in the ring-shaped detection area by a prescribed pitch ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20),

wherein, the pattern identification method further comprises:

previously setting a selection area on the output data ("reads the pattern data values at a predetermined distance r0 from the data center of the converted pattern data" at col. 22, line 45);

executing total sum operation processing for obtaining total sum value of the output data in the selection area (figure 13; the figure is the total sum of value of each pixel along the read line);

obtaining the total sum data string which is data string of the total sum value by executing the total sum operation processing whenever the output data and the selection area are relatively circulated with the prescribed pitch ("remaps the converted pattern data shown in FIG. 11 so that θ1 becomes equal to θ2" at col. 23, line 14; the selection area of acquired data corresponds to a rotational pitch shift from the reference data); and

identifying the pattern on the surface of the circular object to be identified by analyzing the total sum data string ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether

or not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20).

Yoshida et al. does not explicitly disclose that the selection area includes a local maximum value or a local minimum value.

However, as seen in figure 13, the read line includes a variety of values, which conceivably correspond to a local maximum value or a local minimum value of the read line.

Regarding **claim 6**, Yoshida et al. discloses a pattern identification method comprising picking up an image of a pattern on a surface of a circular object to be identified which is an identification object ("coin discriminating apparatus for accurately discriminating a counterfeit coin even when optical data acquired from the counterfeit coin such as diameter data and surface pattern thereof coincide with those of genuine coins" at col. 1, line 7), setting a ring-shaped detection area concentrically with the circular object to be identified on an obtained image data ("reads the pattern data values at a predetermined distance r0 from the data center of the converted pattern data" at col. 22, line 45; reference data is also read at the same distance, as seen in figures 12 and 14), and identifying the pattern on the surface of the circular object to be identified by analyzing output data which is obtained by extracting image data in the ring-shaped detection area with a prescribed pitch ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20;

"compares the two sets of pattern data values, thereby correcting the deviation of the converted pattern data" at col. 22, line 54),

wherein, the pattern identification method further comprises:

previously setting a first selection area of the output data ("reads the pattern data values at a predetermined distance r0 from the data center of the converted pattern data" at col. 22, line 45) and a second selection area of the output data on the output data (figure 12);

executing total sum operation processing for obtaining a first total sum value of the output data in the first selection area (figure 13; the figure is the total sum of value of each pixel along the read line) and a second total sum value of the output data in the second selection area (figure 14; the figure is the total sum of value of each pixel along the read line);

obtaining a first total sum data string which is data string of the first total sum value and a second total sum data string which is data string of the second total sum value by executing the total sum operation processing whenever the output data and the first selection area and the second selection area are relatively shifted with the prescribed pitch ("remaps the converted pattern data shown in FIG. 11 so that θ1 becomes equal to θ2" at col. 23, line 14; the selection area of acquired data corresponds to a relative rotational pitch shift from the reference selection data);

calculating a difference data string by calculating difference between respective elements of the first total sum data string and respective elements of the second total sum data string corresponding to the respective elements of the first total sum data

string ("compares the two sets of pattern data values, thereby correcting the deviation of the converted pattern data" at col. 22, line 54); and

identifying the pattern on the surface of the object to be identified by analyzing the difference data string ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20).

Yoshida et al. does not explicitly disclose that the selection areas include a local maximum value and a local minimum value.

However, as seen in figures 13 and 14, the read lines include a variety of values, which conceivably correspond to a local maximum value and a local minimum value of the read lines.

Regarding **claim 7**, Yoshida et al. discloses the elements of claim 5 as described above.

Yoshida et al. does not disclose setting a plurality ring-shaped detection areas along a radial direction; and analyzing a plurality of total sum data strings which are obtained from respective ring-shaped detection areas or a plurality of difference data strings which are obtained from respective ring-shaped detection areas in the same embodiment.

However, in another embodiment, Yoshida et al. teaches

setting a plurality ring-shaped detection areas along a radial direction ("i=1 to n, n is the number of annular areas of the coin 1 which are predetermined for each denomination" at col. 13, line 16); and

analyzing a plurality of total sum data strings which are obtained from respective ring-shaped detection areas or a plurality of difference data strings which are obtained from respective ring-shaped detection areas ("calculates the absolute value Di...of the difference between the reference ratio data of each binary image pattern group corresponding to each annular area of the coin 1 and the ratio data input from the binary data producing means" at col. 13, line 15).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the difference calculations of Yoshida et al. in addition to the total coin pattern comparison of Yoshida et al. to offer an alternative, yet comparable processing module that achieves the predictable result of coin validity determination (see col. 38, lines 26-37).

Regarding **claim 8**, Yoshida et al. discloses a pattern identification method further comprising:

a first step for inputting the total sum data string or a difference data string as specific input data (the second optical discriminating means takes the plot of the values are examines it);

a second step for setting a specific selection area including a local maximum value or a local minimum value of the specific input data on the specific input data

("which the pattern data value shown in FIG. 13 and the pattern data value shown in FIG. 14 are maximum" at col. 23, line 12);

a third step for executing specific total sum operation processing which obtains a specific total sum value of the specific input data in the specific selection area (figure 13, θ1);

a fourth step for obtaining a specific total sum data string which is a data string of the specific total sum value by executing the specific total sum operation processing whenever the specific input data and the specific selection area are relatively shifted with a prescribed pitch ("remaps the converted pattern data shown in FIG. 11 so that θ1 becomes equal to θ2" at col. 23, line 14); and

after performing the first through the fourth steps, identifying the pattern on the surface of the object to be identified by analyzing the specific total sum data string ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20).

Regarding **claim 9**, Yoshida et al. discloses a pattern identification method further comprising:

obtaining the specific total sum data string as the specific input data by repeatedly performing the second step through the fourth step a plurality of times (in examining each data value to find the final θ1, the processing is repeated until all data values are examined); and

identifying the pattern on the surface of the object to be identified by analyzing the specific total sum data string ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20).

Regarding **claim 10**, Yoshida et al. discloses a pattern identification method further comprising:

a first step for inputting the total sum data string or a difference data string as specific input data (the second optical discriminating means takes the plot of the values are examines it);

a second step for setting a first specific selection area including a local maximum value of the specific input data (area surrounding maximum θ in figure 13 includes a local maximum) and a second specific selection area including a local minimum value of the specific input data on the specific input data (area surrounding maximum θ in figure 14 includes a local minimum);

a third step for executing a specific total sum operation processing which obtains a first specific total sum value of the specific input data in the first specific selection area (figure 13, θ1) and a second specific total sum value of the specific input data in the second specific selection area (figure 14, θ2);

a fourth step for obtaining a first specific total sum data string which is a data string of the first specific total sum value and a second specific total sum data string which is a data string of the second specific total sum value by executing the specific

total sum operation processing whenever the specific input data and the first specific selection area and the second specific selection area are relatively shifted with a prescribed pitch ("remaps the converted pattern data shown in FIG. 11 so that θ1 becomes equal to θ2" at col. 23, line 14);

a fifth step for calculating a specific difference data string by calculating a difference between respective elements of the first specific total sum data string and respective elements of the second specific total sum data string corresponding to the respective elements of the first specific total sum data string ("compares the two sets of pattern data values, thereby correcting the deviation of the converted pattern data" at col. 22, line 54); and

after performing the first through the fifth steps, identifying the pattern on the surface of the object to be identified by analyzing the specific difference data string ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20).

Regarding **claim 11**, Yoshida et al. discloses a pattern identification method further comprising:

obtaining the specific difference data string as the specific input data by repeatedly performing processings from the second step through the fifth step a plurality of times (in examining each data value to find the final θ1 and θ2, the processing is repeated until all data values are examined); and

identifying the pattern on the surface of the object to be identified by analyzing the specific difference data string ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20).

Regarding **claim 12**, Yoshida et al. discloses pattern identification method comprising:

obtaining a specific total sum data string or a specific difference data string as a specific input data by repeatedly performing a plurality of times (in examining each data value to find the final θ1 and θ2, the processing is repeated until all data values are examined) processings steps of

setting a specific selection area including a local maximum value or a local minimum value of the specific input data on the specific input data ("which the pattern data value shown in FIG. 13 and the pattern data value shown in FIG. 14 are maximum" at col. 23, line 12);

executing specific total sum operation processing which obtains a specific total sum value of the specific input data in the specific selection area (figure 13, θ1); and

obtaining a specific total sum data string which is a data string of the specific total sum value by executing the specific total sum operation processing whenever the specific input data and the specific selection area are relatively shifted with a prescribed pitch ("remaps the converted pattern data shown in FIG. 11 so that θ1 becomes equal to θ2" at col. 23, line 14);

or processings steps of

setting a first specific selection area including a local maximum value of the specific input data (area surrounding maximum θ in figure 13 includes a local maximum) and a second specific selection area including a local minimum value of the specific input data on the specific input data (area surrounding maximum θ in figure 14 includes a local minimum);

executing a specific total sum operation processing which obtains a first specific total sum value of the specific input data in the first specific selection area (figure 13, θ1) and a second specific total sum value of the specific input data in the second specific selection area (figure 14, θ2);

obtaining a first specific total sum data string which is a data string of the first specific total sum value and a second specific total sum data string which is a data string of the second specific total sum value by executing the specific total sum operation processing whenever the specific input data and the first specific selection area and the second specific selection area are relatively shifted with a prescribed pitch ("remaps the converted pattern data shown in FIG. 11 so that θ1 becomes equal to θ2" at col. 23, line 14); and

calculating a specific difference data string by calculating a difference between respective elements of the first specific total sum data string and respective elements of the second specific total sum data string corresponding to the respective elements of the first specific total sum data string ("compares the two sets of pattern data values,

thereby correcting the deviation of the converted pattern data" at col. 22, line 54); and then

identifying a pattern on a surface of an object to be identified by analyzing the specific total sum data string or the specific difference data string ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20).

Regarding **claim 15**, Yoshida et al. discloses a pattern identification method wherein the analyzing of the total sum data string, the specific total sum data string, the difference data string or the specific difference data string includes comparing an entire total sum data string, an entire specific total sum data string, an entire difference data string or an entire specific difference data string with a reference total sum data string or a reference difference data string which are previously set ("compares the two sets of pattern data values, thereby correcting the deviation of the converted pattern data" at col. 22, line 54).

Regarding **claim 22**, Yoshida et al. discloses a pattern identification method further comprising determining genuineness of an object to be identified or a circular object to be identified ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable" at col. 23, line 20).

Regarding **claim 23**, Yoshida et al. discloses an identification device ("coin discriminating apparatus for accurately discriminating a counterfeit coin even when optical data acquired from the counterfeit coin such as diameter data and surface pattern thereof coincide with those of genuine coins" at col. 1, line 7), comprising

an identification means for identifying a pattern on the surface of an object to be identified or a circular object to be identified ("discriminating a counterfeit coin even when optical data acquired from the counterfeit coin such as diameter data and surface pattern thereof coincide with those of genuine coins" at col. 1, line 8);

means for analyzing output data based on image data obtained by picking up an image of a pattern on the surface of an object to be identified or a circular object to be identified which is an identification object ("receiving light reflected by the upper surface of a coin 1 and producing image pattern data" at col. 9, line 15),

means for setting a selection area on the output data ("reads the pattern data values at a predetermined distance r0 from the data center of the converted pattern data" at col. 22, line 45);

means for executing total sum operation processing for obtaining total sum value of the output data in the selection area (figure 13; the figure is the total sum of value of each pixel along the read line); and

means for identifying the pattern on the surface of the object to be identified on the basis of the total sum value ("discriminates whether or not the coin 1 is the coin of the denomination determined by the first optical discriminating means 65 or whether or

not the coin 1 is acceptable, in accordance with the extent of how well the converted pattern data coincides with the reference pattern data" at col. 23, line 20).

Yoshida et al. does not explicitly disclose that the selection area includes a local maximum value or a local minimum value.

However, as seen in figure 13, the read line includes a variety of values, which conceivably correspond to a local maximum value or a local minimum value of the read line.

Yoshida et al. does not explicitly disclose that the identification means, means for analyzing, means for setting, means for executing and means for identifying are portions of a CPU utilizing software modules.

However, as Yoshida et al. does disclose that the apparatus may include software ("accomplished by software" at col. 34, line 41). As software is commonly utilized by a CPU for execution, it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the method of Yoshida et al. by using a CPU that executes software, which is equivalent to applicant's disclosed processor.

Regarding **claim 24**, Yoshida et al. discloses an identification device further comprising

a genuineness decision means for determining genuineness of an object to be identified or a circular object to be identified ("discriminates whether or not the coin 1 is

the coin of the denomination determined by the first optical discriminating means 65 or whether or not the coin 1 is acceptable" at col. 23, line 20).

Yoshida et al. does not explicitly disclose that the genuineness decision means is a portion of a CPU utilizing software modules.

However, as Yoshida et al. does disclose that the apparatus may include software ("accomplished by software" at col. 34, line 41). As software is commonly utilized by a CPU for execution, it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the method of Yoshida et al. by using a CPU that executes software, which is equivalent to applicant's disclosed processor.

Regarding **claim 27**, Yoshida et al. discloses a pattern identification method wherein the analyzing of the total sum data string, the specific total sum data string or the difference data string includes comparing an entire total sum data string, an entire specific total sum data string or an entire difference data string with a reference total sum data string or a reference difference data string which are previously set ("compares the two sets of pattern data values, thereby correcting the deviation of the converted pattern data" at col. 22, line 54).

13. Claims 13, 14, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. as applied to claims 8 and 10 above, and further in view of Bointon et al. (US 5,797,475).

Regarding **claims 13 and 25**, Yoshida et al. discloses a pattern identification method wherein analyzing of the total sum data string, the specific total sum data string, the difference data string or the specific difference data string includes:

detecting a peak value of the total sum data string, the specific total sum data string, the difference data string or the specific difference data string ("which the pattern data value shown in FIG. 13 and the pattern data value shown in FIG. 14 are maximum" at col. 23, line 12).

Yoshida et al. does not disclose comparing the peak value detected with a prescribed threshold value.

Bointon et al. teaches a pattern identification method in the same field of endeavor of coin recognition ("coin validator" at col. 3, line 14) comprising comparing the peak value detected with a prescribed threshold value ("testing the peak amplitudes stored in the step 104, and counting the number which exceed a predetermined threshold" at col. 5, line 27).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the peak comparison of Bointon et al. to evaluate the data string of Yoshida et al. to eliminate readings that may arise from sensor noise (see col. 5, line 29-30).

Regarding **claims 14 and 26**, Yoshida et al. discloses the elements of claims 8 and 10 as described above.

Yoshida et al. does not disclose that the analyzing of the total sum data string, the specific total sum data string, the difference data string or the specific difference

data string includes: counting peak values of the total sum data string, the specific total sum data stream, the difference data string or the specific difference data string, and comparing a total number of which the peak values are counted with a prescribed threshold value.

Bointon et al. teaches a pattern identification method in the same field of endeavor of coin recognition ("coin validator" at col. 3, line 14) comprising:

counting peak values of the total sum data string, the specific total sum data stream, the difference data string or the specific difference data string ("testing the peak amplitudes stored in the step 104, and counting the number which exceed a predetermined threshold" at col. 5, line 27), and

comparing a total number of which the peak values are counted with a prescribed threshold value ("number of peaks in excess of this threshold is then compared with a predetermined constant" at col. 5, line 31).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the peak comparison of Bointon et al. to evaluate the data string of Yoshida et al. to eliminate readings that may arise from sensor noise (see col. 5, line 29-30).

14. Claims 16 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. as applied to claims 8 and 10 above, and further in view of Fromme et al. (US 6,988,610).

Yoshida et al. discloses a pattern identification method wherein analyzing of the total sum data string, the specific total sum data string, the difference data string or the specific difference data string includes:

detecting a peak value of the total sum data string, the specific total sum data string, the difference data string or the specific difference data string ("which the pattern data value shown in FIG. 13 and the pattern data value shown in FIG. 14 are maximum" at col. 23, line 12).

Yoshida et al. does not disclose obtaining an average value of the total sum data string, the specific total sum data string, the difference data string or the specific difference data string; and comparing a value, which is subtracted the average value of the total sum data string, the specific total sum data string, the difference data string or the specific difference data string from the peak value of the total sum data string, the specific total sum data string, the difference data string or the specific difference data string, with a prescribed threshold value.

Fromme et al. teaches a method in the same field of endeavor of inspection systems utilize image data ("detecting an object in the portion of the conveyor belt based on the received image data" at col. 1, line 41) comprising:

obtaining an average value of the total sum data string, the specific total sum data string, the difference data string or the specific difference data string ("mean window sum response within a row" at col. 27, line 22); and

comparing a value ("ClassificationScore" at col. 27, line 26), which is subtracted the average value of the total sum data string, the specific total sum data string, the

difference data string or the specific difference data string from the peak value of the total sum data string, the specific total sum data string, the difference data string or the specific difference data string (equation at col. 27, line 26), with a prescribed threshold value ("classification threshold level" at col. 27, line 50).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the classification scoring of Fromme et al. on the data string of Yoshida et al. to quickly normalize the data such that a denomination determination can be made.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATRINA FUJITA whose telephone number is (571)270-1574. The examiner can normally be reached on M-Th 8-5:30pm, F 8-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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